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ATLAS
OF SOIL PROFILES

W. L. KUBIËNA

INSTITUTE OF SOILS, CONSEJO SUPERIOR
DE INVESTIGACIONES CIENTIFICAS, Madrid

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This atlas was compiled at the request of the circle of readers who wished to keep loose the coloured plates of the Author's book «The Soils of Europe». There were different reasons for this demand. Some wished to use the plates framed as a decoration for their working rooms, others saw a possibility of using them for their lectures as graphical demonstrative material, either directly or with the use of an epidiascope. The most numerous were those who considered the use of coloured plates of profiles an urgent need in the teaching of pedology, which is not limited today only to the Schools of Agriculture and Selviculture, but is gaining more and more interest in General Natural Science. In some countries it has even become part of the Secondary Teaching and in rural districts also of Primary Teaching. It is to be hoped that this development continues to increase. In general teaching the possibility of including some special modern subjects of Natural Science depends greatly on the posession of graphical demonstrative material. As mankind lives from the soil, the failure to supply in our general education an adequate knowledge of soils must be considered as a serious lack.

There are amateurs who profit more from the contemplation of loose plates in a portfolio than from searching them among the pages of a book. Also by those the publication in the present form will be appreciated.

This atlas contains only the plates of profiles. The micromorphological plates of the above mentioned book are not included because it is intended to use them in a separate micromorphological atlas. The latter will give an overall view on the most important forms of soil structure in order to facilitate the application of the morphological method in the diagnosis of the soil.

The plates I-VIII, X-XVII, XIX-XXI, XXII and XXIII have been painted by Mrs. Gertrud Kallab Purtscher, plates IX-XVIII and XX 2 by Mr. Anton Prazak.

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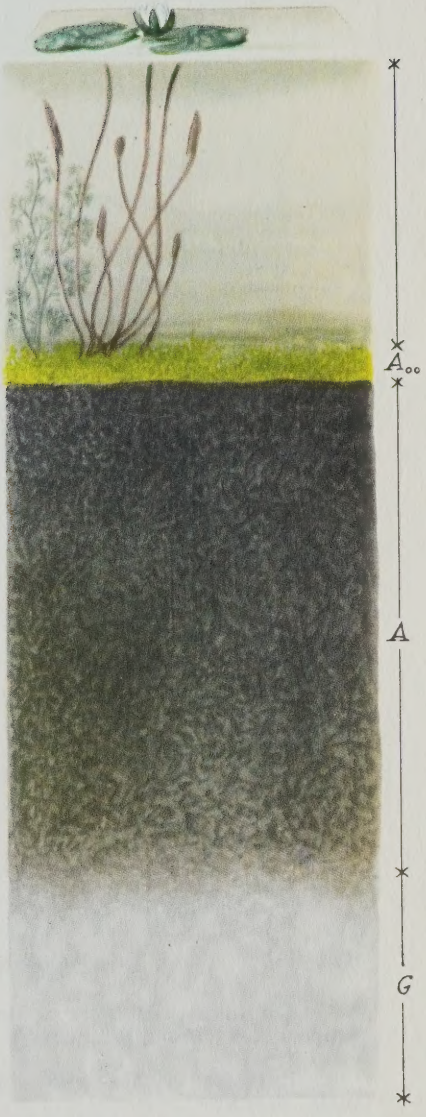

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Explanation of plate I

1. **Dy** in a pool of a podsol and highmoor zone over granite below spruce forest (Bohemian Forest).

2. **Eutrofic Gyttja** with *Nymphea alba* and an äfja of green algae (Wies, Styria).

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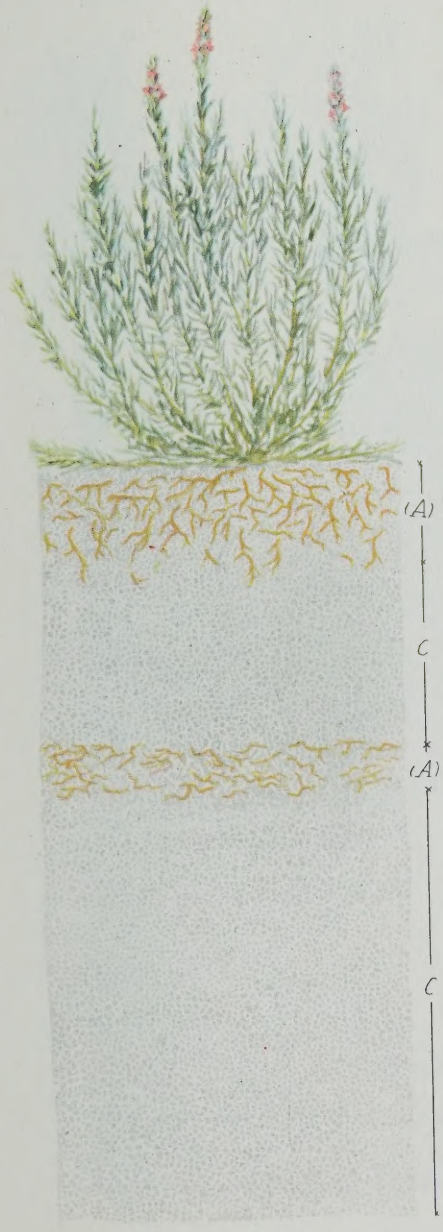

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Explanation of plate II

1. **Rambla** (raw warp soil) with *Myricaria Germanica.* In the subsoil a buried (A) Horizon (Enns Valley, Styria).

2. **Anmoor** below *Iris sibirica* with strongly gleyed subsoil (Enns Valley, Styria).

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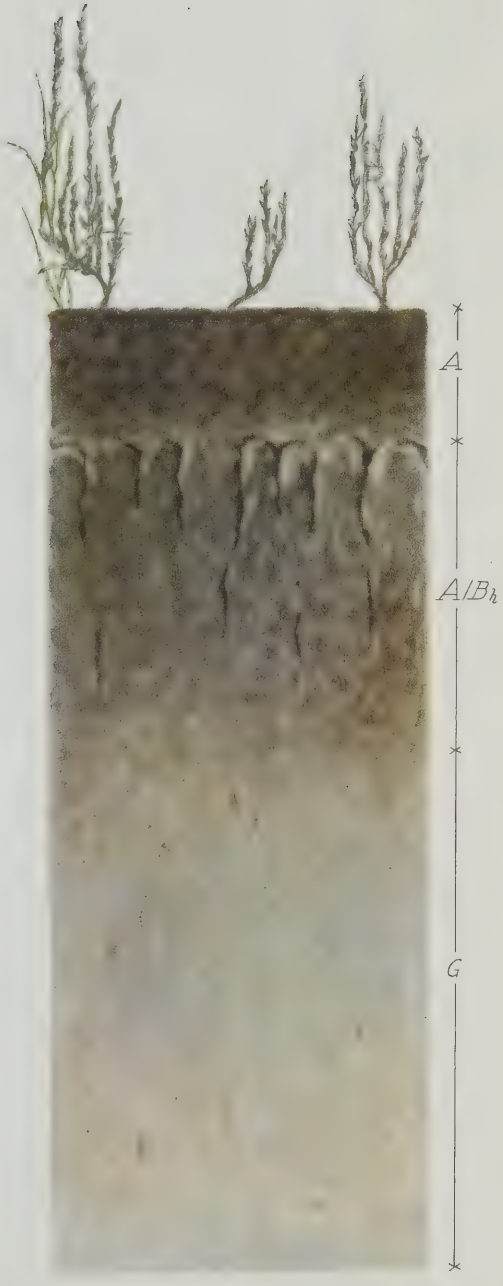

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Explanation of plate III

1. **Solonchak** with *Atropis distans* and strongly developed layer of salt enrichment (A/Sa) and superficial salt efflorescences (Sa). Summer aspect.

2. **Solonetz** with *Artemisia pauciflora* and well developed columnar horizon (A/Bh).

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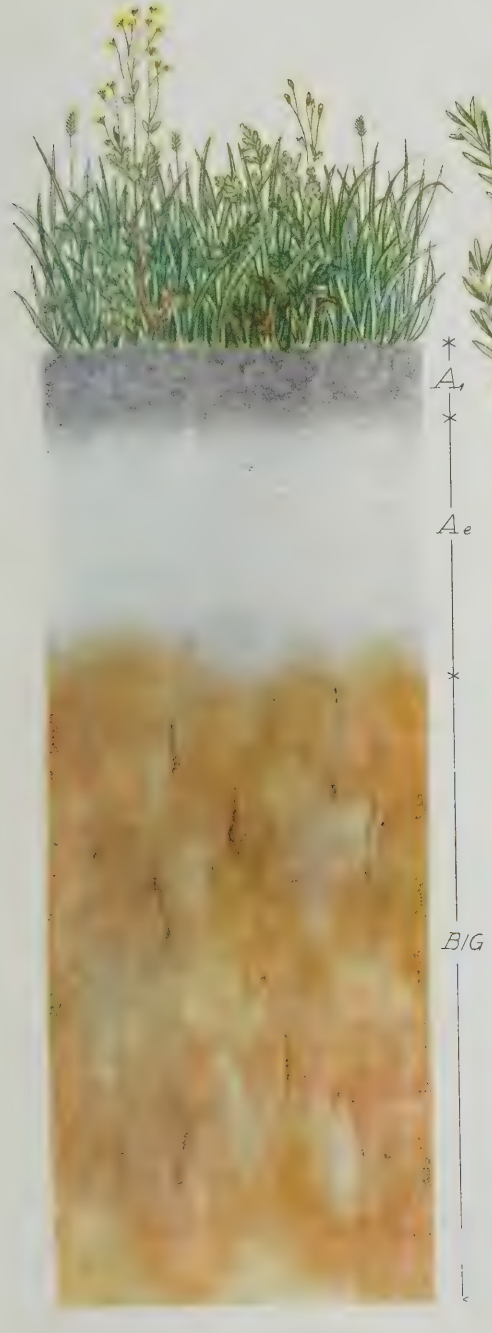

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Explanation of plate IV

1. **Solod** with bleached horizon formation below a lawn of *Koeleria gracilis* and *Pyrethrum achilleifolium.*

2. **Paternia** (grey warp soil) below pasture and alder bushes with two buried profiles (I and II) (Enns Valley, Styria).

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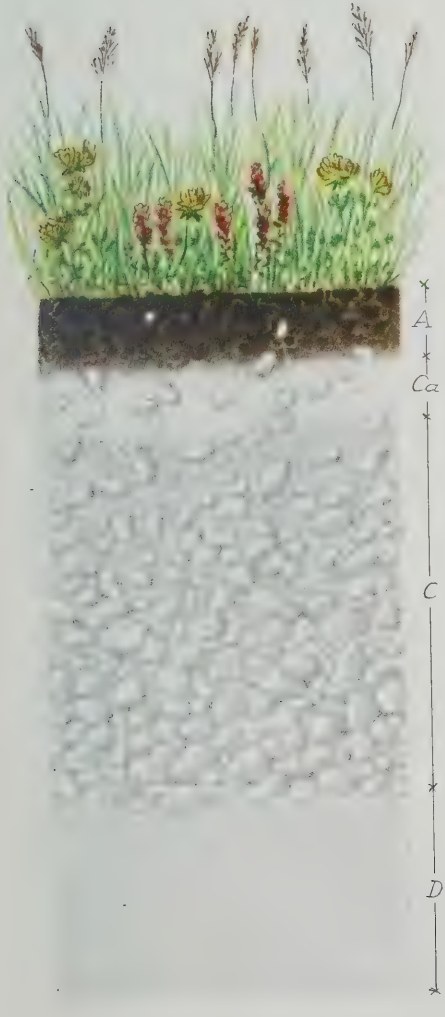

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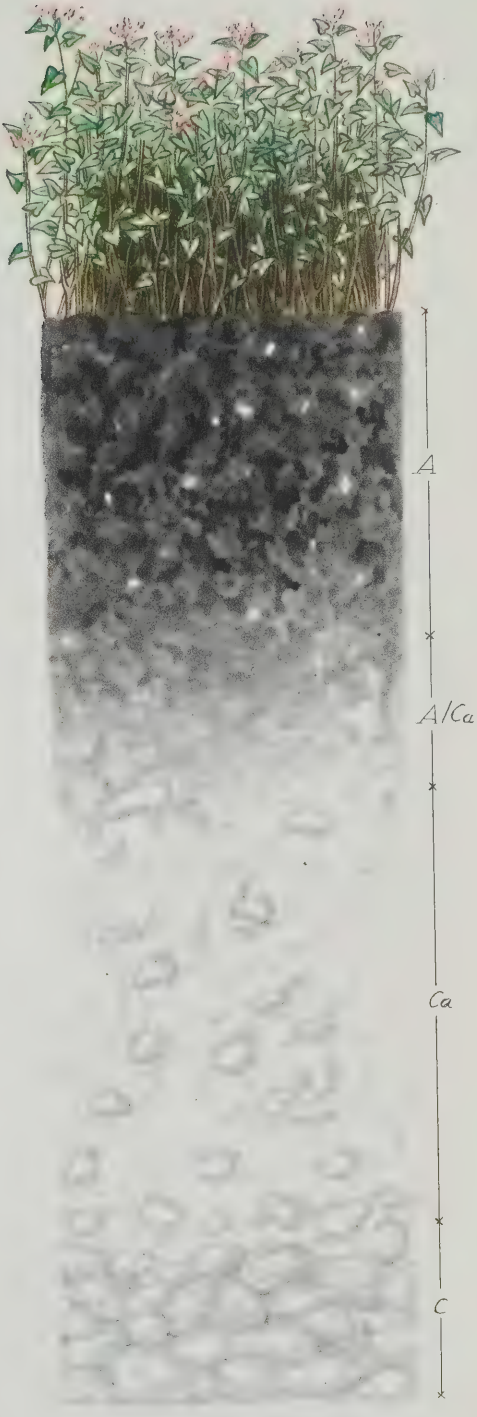

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Explanation of plate V

1. **Borovina** (rendsina-like warp soil) below dry lawn on limestone gravel (C) above limestone sand (D) (Enns Valley, Styria).

2. **Smonitza** (chernosem-like warp soil) below buckwheat field on limestone gravel (Basin of Vienna).

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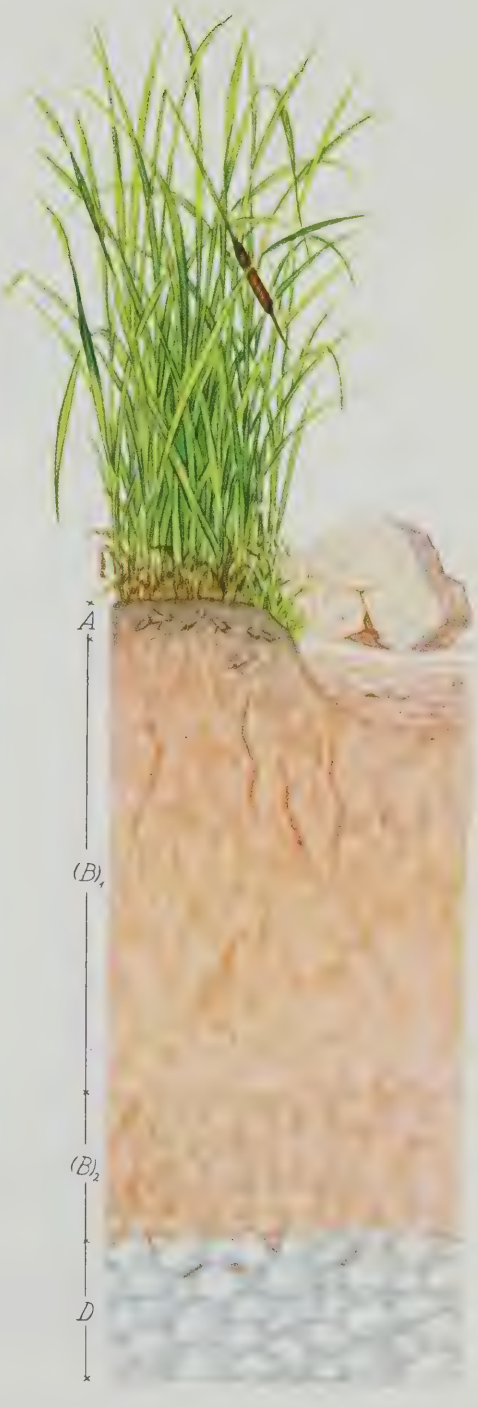

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Explanation of plate VI

1. **Allochthonous brown vega** (brown warp soil) below meadow with two buried profiles (I and II) with lightly anmoor-like humus formation. (Pulkau Valley, Lower Austria.)

2. **Braunlehm vega** (brown loam warp soil) in two layers. In irrigation channel (above right) stratified erosion sediments assorted by grainsize. Upon them lies a fragment of the heavily cemented surface crust. (Valley of Gallego, Zaragoza, Spain.)

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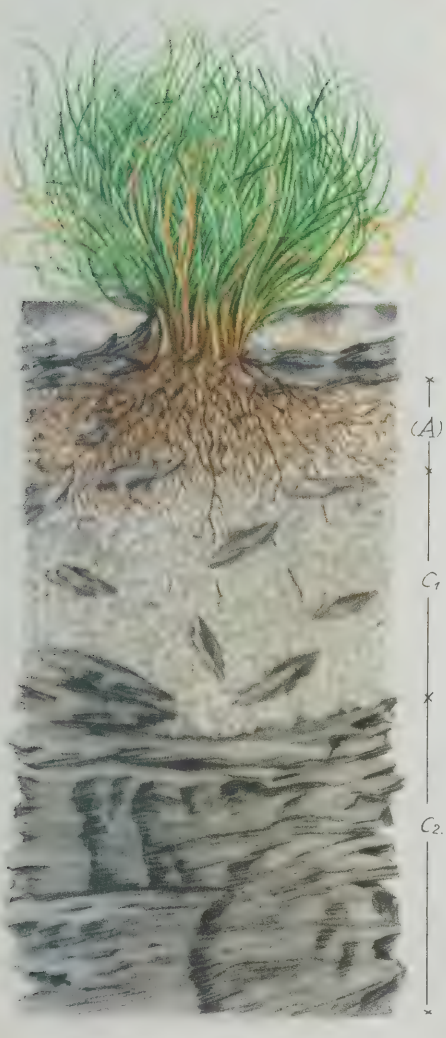

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Explanation of plate VII

1. **Alpine Hamada Rawmark** (alpine hamada raw soil) below *Festuca duriuscula* on graphite sericite phyllite (Veleta, Sierra Nevada, 3740 m. Spain).

2. **Lime Crust Yerma** (lime crust desert soil) above loose marl. On the surface a lime crust fragment with endolitic lichens. On the left fissure filled up with eolic sediments with the formation of a surface rind. Scanty desert vegetation in fissures, in the picture *Anabasis articulata* (Beach of San Juan, Alicante).

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Explanation of plate VIII

1. **Tundra ranker** below *Empetrum nigrum* on aplitic injection gneiss (Liinahamari, Finlandish polar sea coast).

2. **Eilagranker** below *Poa bulbosa* on granite (Guarramas 2240 m. Sierra de Guadarrama, Spain).

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Explanation of plate IX

1. **Mull like ranker** below *Festuca varia* on chlorite schist (Wöllaner Nock, Carintia, ca 2000 m. Austria).

2. **Grey ranker** below spruce forest on sericite phyllite (Rottenmann. Styria, ca 750 m. Austria).

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Explanation of plate X

1. **Tangel ranker** below germinating *Sarothamnus purgans* on gneiss (Maliciosa, 2000 m., Sierra de Guadarrama, Spain).

2. **Podsol ranker** below Calluna heath on quarzite (Cordillera Cantábrica, Asturias, Spain, of 1700 m.).

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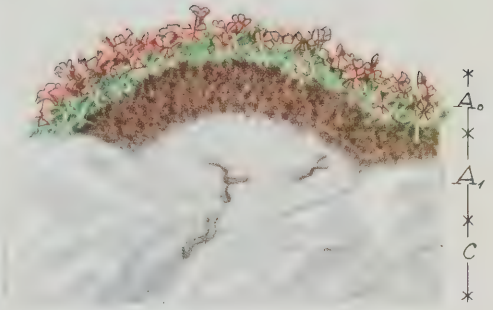

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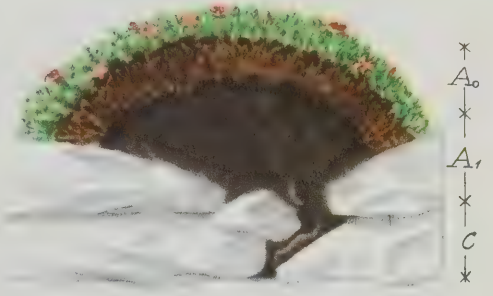

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Explanation of plate XI

1. **Alpine pitch rendzina** below moist *Firmetum* on limestone Hochkönig, Salzburg, 2300 m., Austria).

2. **Grey alpine cushion rendzina** below *Silene acaulis* on limestone (Dachstein, Styria, 2800 m.).

3. **Black alpine cushion rendzina** below *Saxifraga Rudolfiana* on limestone (Hochkönig, Salzburg. 2700 m.).

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Explanation of plate XII

1. **Tangelrendsina** below *Pinus montana* and *Rhododendron hirsutum* on dolomite (Dachsteingebiet, Styria, 1700 m.).

2. **Brown rendsina** below *Quercus Ilex* and *Juniperus oxycedrus* on dolomitic limestone (Guadalix, Prov. Madrid, 850 m.).

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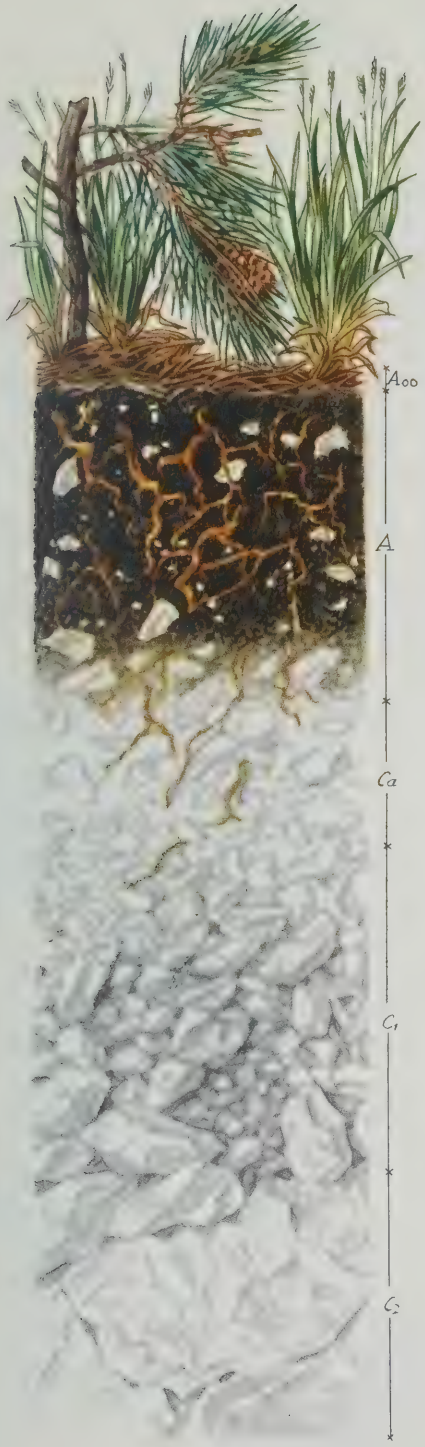

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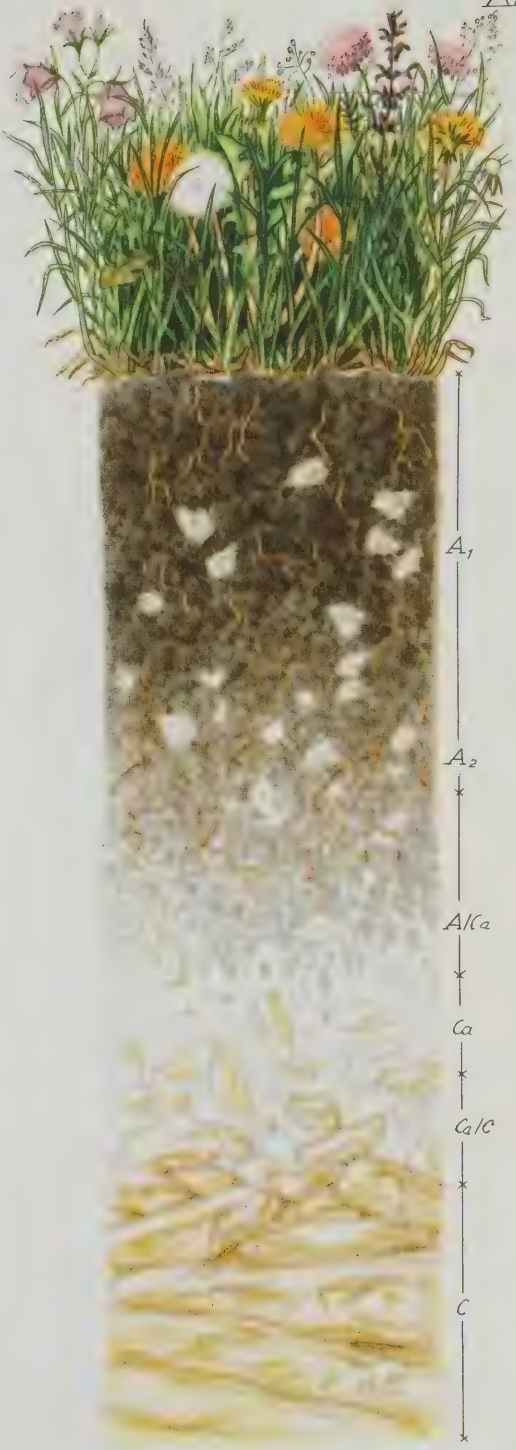

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Explanation of plate XIII

1. **Mull-like rendsina** below forest of *Pinus nigra austriaca* with *Sesleria varia* on dolomite (Mödling, Southern Wienerwald).

2. **Mull rendsina** below meadow on marl (Southern Wienerwald).

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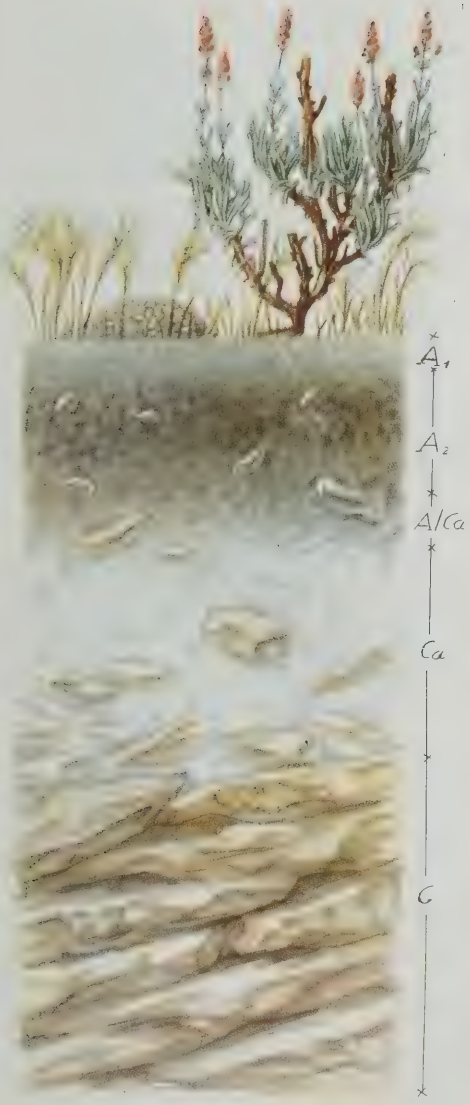

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Explanation of plate XIV

1. **Xerorendsina** below xerophitic flora of rock steppe, in the picture *Lavandula latifolia* and *Brachypodium ramosum* on marl rich in gypsum (Sierra de la Muela, Prov. Zaragoza, Spain).

2. **Serosem** on marl containing gypsum below scanty vegetation of the dry steppe, in the picture *Herniaria fructicosa* and *Ononis tridentata* (Vallecas, near Madrid).

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Explanation of plate XV

1. **Chernozem** on loess (Haugsdorf Lower Austria).
2. **Degraded chernozem** on loess (Mistelbach, Lower Austria).

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Explanation of plate XVI

1. **Typical terra fusca** (limestone brown loam) below beech forest on limestone (Southern Wienerwald).

2. **Siallitic terra rossa** (limestone-red loam) below xerophytic top flora in the picture *Ptilotrichum spinosum* and *Festuca Hystrix* on limestone. Summer aspect (Prov. Valencia, Spain).

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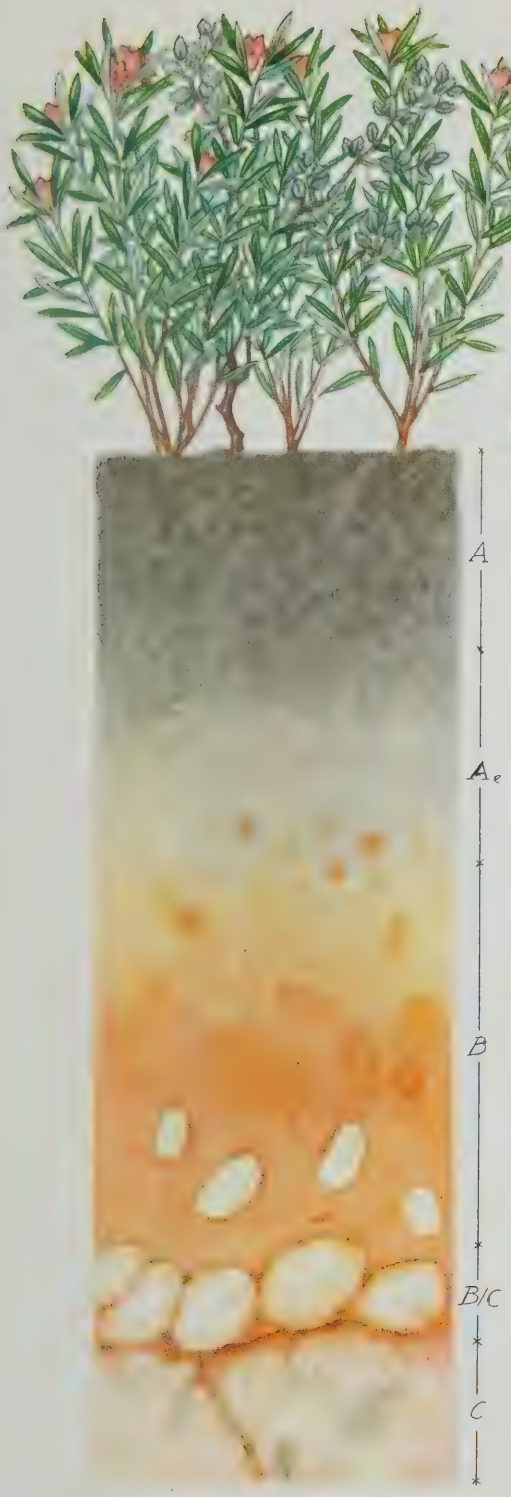

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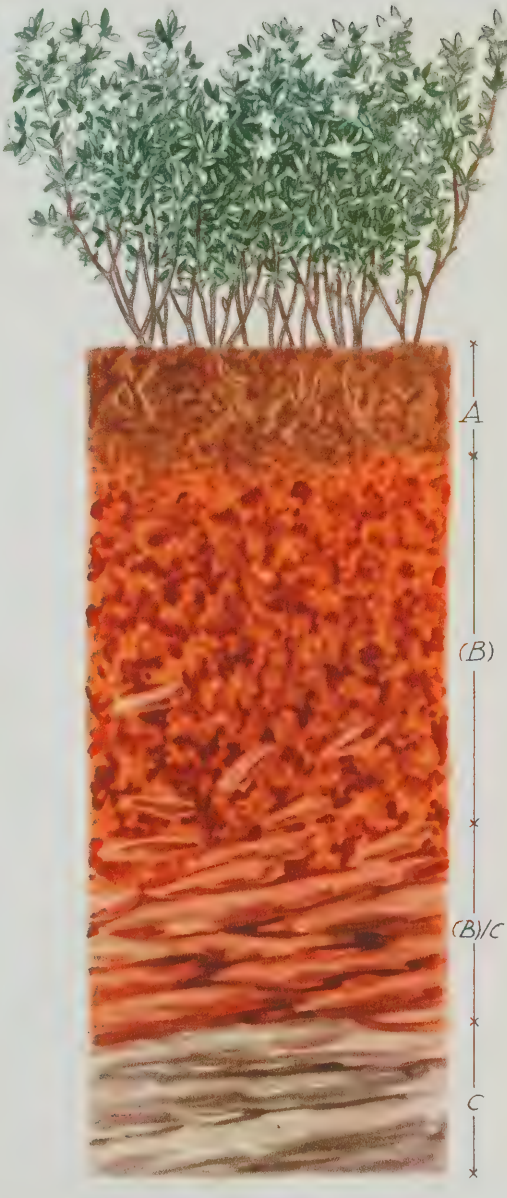

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Explanation of plate XVII

1. **Bleached braunlehm** (in the picture *betic gelblehm*, an Andalusian local variety) below *Rhododendron baeticum* and *Quercus suber* on siliceous sandstone.

2. **Slightly bleached rotlehm** relict soil on clay schist below *Cistus laurifolius*. (Sierra Morena, Puerto de Despeñaperros, Spain).

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Explanation of plate XVIII

1. **Eutrophic (Centro-European) Braunerde** below beech forest on basaltic lava (Paulusberg, Burgenland, Austria).

2. **Oligotrophic (Centro-European) Braunerde** below mixed forest on sandstone shale (Admont, Styria).

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Explanation of plate XX

1. **Eupodsolic brown earth** *(eumorphic semipodsol)* on mountain pasture with *Crocus nudiflorus* (on quarzite schist) (Cordillera Cantábrica, Asturias, 1.400 m.).

2. **Stesopodsolic brown earth** *(stesomorphic semipodsol)* below beech forest with bilberry shrubs on chlorite schist (Freyenthurn, Klagenfurt, Carintia, Austria).

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Explanation of plate XXI

1. **Krauss Pseudogley** below spruce forest; thickets of *Aira flexuosa* on weathering sediments of sandstone (Elbesandsteingebirge).

2. **Molken-podsol** under spruce forest with cranberry and bilberry bushes on moraine (Serfaus, Tyrol, 1.800 m.).

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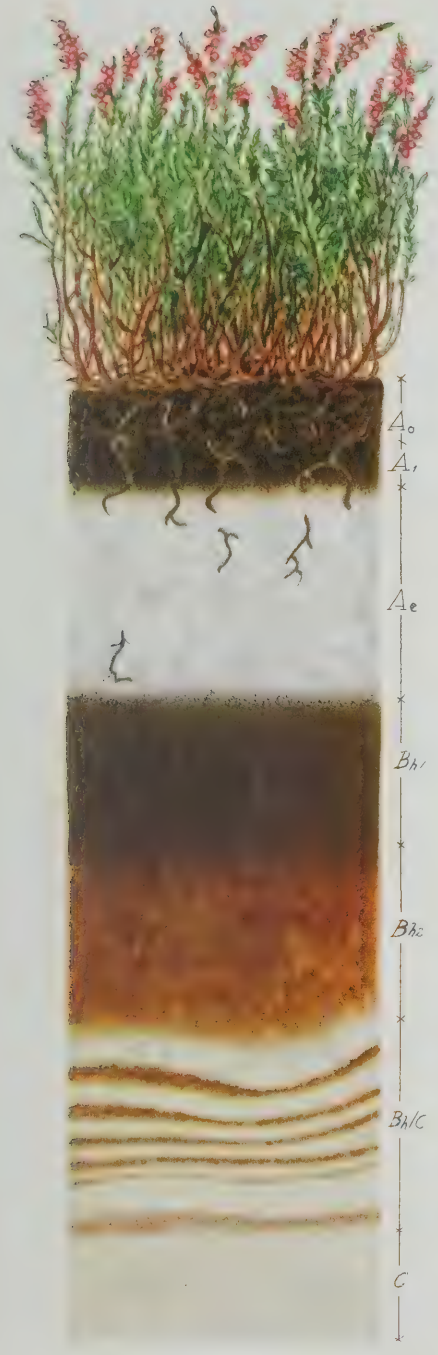

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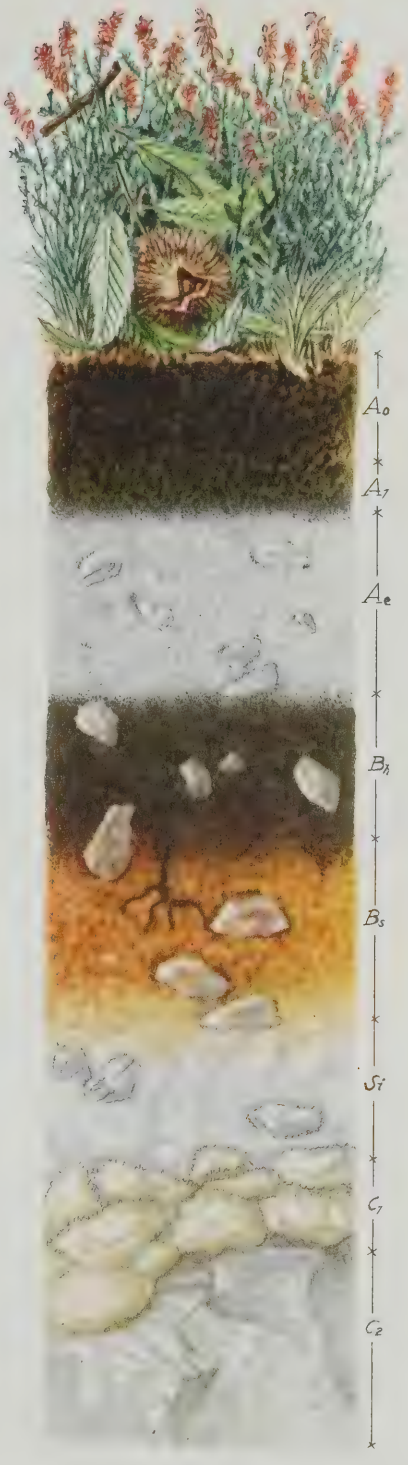

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Explanation of plate XXII

1. **Humus-podsol** on dune sands under *Calluna* heather with two ortstein layers (Bh_1-Bh_2) followed by a series of ortsteinbands (Dorum, Bremen, North Sea coast).

2. (**Asturian**) **Iron-humus-podsol** under grassy heath with *Erica ciliaris* under oak and chestnut trees on silicious sandstone (Cantabrian Cordillera, Asturias, 300 m.).

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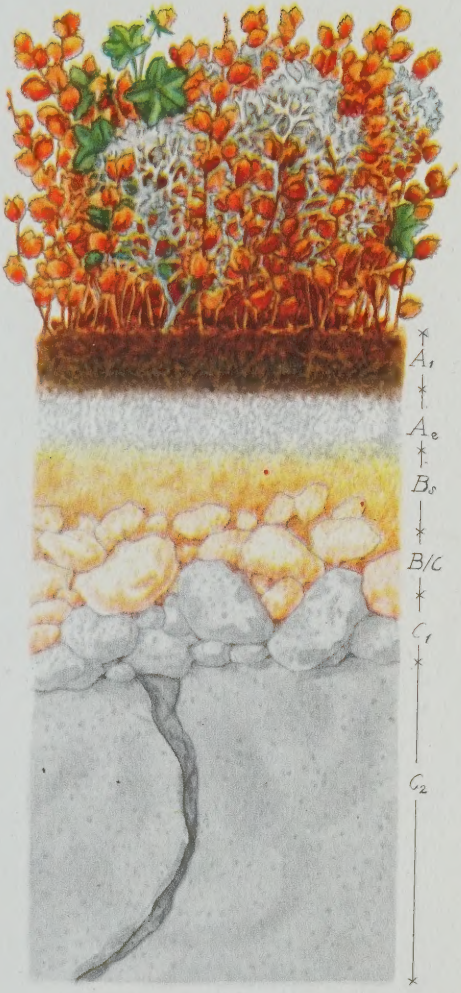

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Explanation of plate XXIII

1. **Iron-podsol** under pine forest *(Pinus silvestris)* on moraine (Heinavesi, Finland).

2. **Northern Nanopodsol** (Northern dwarf podsol) under tundra forest with Betula nana and *Cladonia rangiferina* on syenite (Petsamo, Finnish Lappland).

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